



Release2005.1

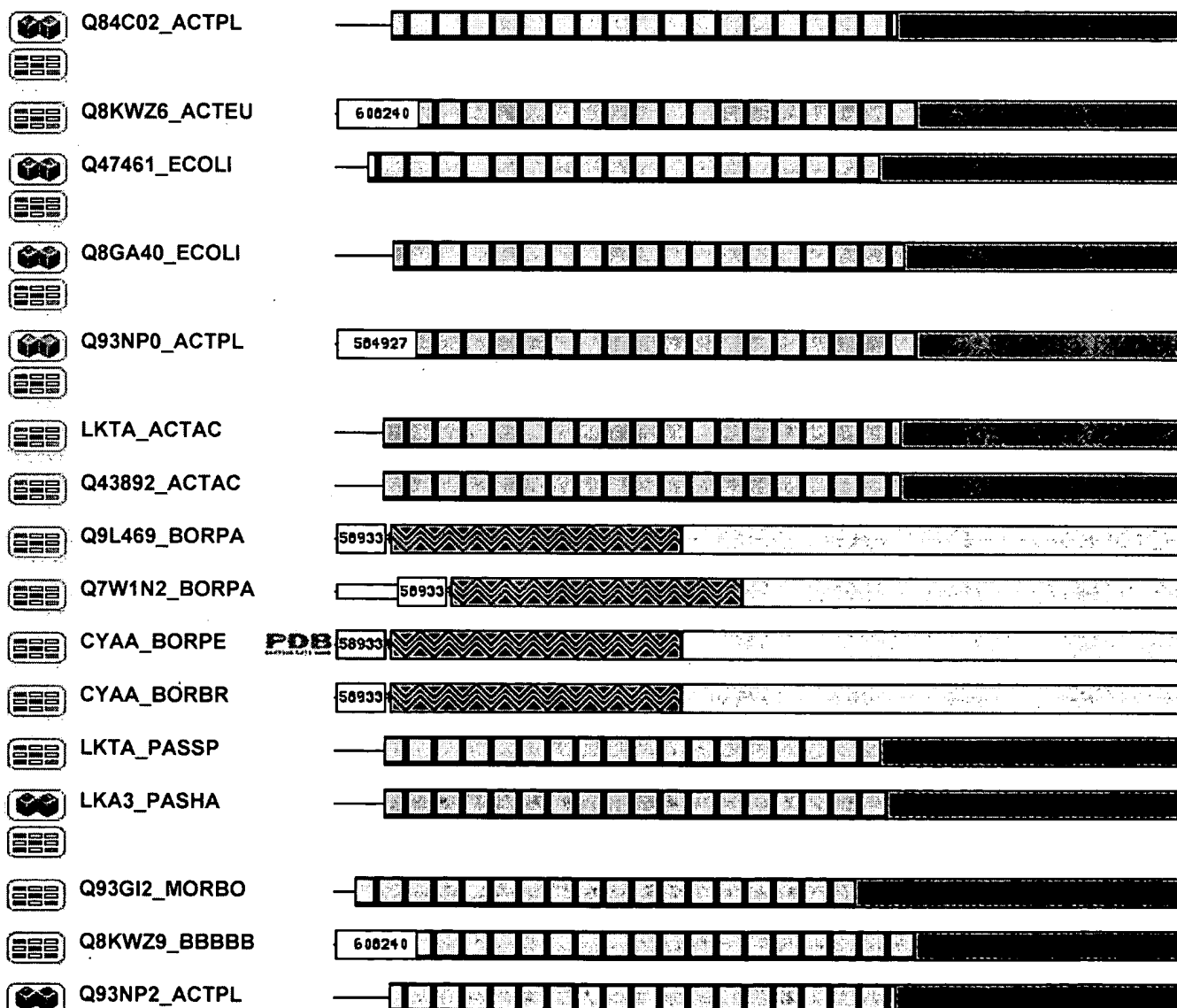
## Proteins sharing a prodom "Domain" with Q93GI2\_MORBO (Q93GI2)



Complete output

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Am. J. Vet. Res., 50:1437-1441.

Other Reference Publication (18):

Riley, Growth Requirements for Moraxella Bovis, Veterinary Microbiology, 9 (1984) 593-598.

Other Reference Publication (19):

Ostle et al., Outer Membrane Protein Antigens of Moraxella Bovis, Am. J. Vet. Res., vol. 47, No. 7, Jul., 1986.

CLAIMS:

1. A method of producing a M bovis cell culture comprising the steps of inoculating a colony of M bovis in a growth medium and causing said colony to grow therein and express outer membrane proteins, said medium having a low available iron content resulting in at least about 0.01% by weight of the total expressed outer membrane protein content having a molecular weight of about 104 kDa, as determined by sodium dodecyl sulfate polyacrylamide gel electrophoresis and quantified by soft laser densitometry.
5. A mixture of isolated outer membrane proteins derived from M bovis, said mixture including an outer membrane protein having a molecular weight of about 104 kDa, as determined by sodium dodecyl sulfate polyacrylamide gel electrophoresis.
9. An isolated outer membrane protein derived from M. bovis and having a molecular weight of about 104 kDa.

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# WEST Search History

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DATE: Thursday, April 06, 2006

Hide?	Set Name	Query	Hit Count
		<i>DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR</i>	
<input type="checkbox"/>	L1	epp and bovis	17
<input type="checkbox"/>	L2	39218 and bovis	1

END OF SEARCH HISTORY

## WEST Search History





DATE: Thursday, April 06, 2006

Hide?	<u>Set</u> <u>Name</u>	<u>Query</u>	<u>Hit</u> <u>Count</u>
	<i>DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR</i>		
<input type="checkbox"/>	L1	leukotox\$ or leucotox\$ or leuco-tox\$ or leuko-tox\$	337
<input type="checkbox"/>	L2	fusion or fused or chimera or chimeric or heterologous or heter-ologous or foreign or subsequence or sub-sequence or single-chain or singlechain or pt7-7 or pt7 or pproexhta or ppro or exhta	1563431
<input type="checkbox"/>	L3	hishishis or hishishishis or hishishishishis or hishishishishishis or 6his or 6-his or 6xhis or 6x-his or polyhistidine or poly-his or 6histidine or poly6his or poly-6his or nickel or chélate or metal	4592792
<input type="checkbox"/>	L4	L3 and l2 and l1	106
<input type="checkbox"/>	L5	L3.clm. and l2.clm. and l1.clm.	0
<input type="checkbox"/>	L6	L3.clm. and l1.clm.	0
<input type="checkbox"/>	L7	L3.clm. and l2.clm.	10305
<input type="checkbox"/>	L8	L7 and l1	1
<input type="checkbox"/>	L9	l1.clm.	51
<input type="checkbox"/>	L10	L9 and l3	9
<input type="checkbox"/>	L11	l1 near100 (epitope or fragment or segment or portion or subunit or sub-unit or truncate or truncated)	77
<input type="checkbox"/>	L12	L11 near100 (l3 or poly-hisitide or ninta or ni-nta)	3
<input type="checkbox"/>	L13	L11 and (l3 or poly-hisitide or ninta or ni-nta)	16
<input type="checkbox"/>	L14	L13 not l12	13
<input type="checkbox"/>	L15	(6797272 or 6096320 or 5837268 or 5594107).pn.	8
<input type="checkbox"/>	L16	('5594107'  '6797272'  '5837268'  '6096320')!.ABPN1,NRPN,PN,TBAN,WKU.	8

END OF SEARCH HISTORY

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Search Results - Record(s) 1 through 8 of 8 returned.

---

L16: Entry 1 of 8

File: USPT

Sep 28, 2004

US-PAT-NO: 6797272

DOCUMENT-IDENTIFIER: US 6797272 B1

TITLE: Enhanced immunogenicity using leukotoxin chimeras

DATE-ISSUED: September 28, 2004

US-CL-ISSUED: 424/192.1; 424/255.1, 424/185.1, 424/193.1, 424/195.11, 424/236.1, 424/241.1, 530/350, 530/351

US-CL-CURRENT: 424/192.1; 424/185.1, 424/193.1, 424/195.11, 424/236.1, 424/241.1, 424/255.1, 530/350, 530/351INT-CL-ISSUED: [07] A61 K 39/00

---

L16: Entry 2 of 8

File: USPT

Aug 1, 2000

US-PAT-NO: 6096320

DOCUMENT-IDENTIFIER: US 6096320 A

TITLE: Vaccines with chimeric protein comprising gamma-interferon and leukotoxin derived from pasteurella haemolytica

DATE-ISSUED: August 1, 2000

US-CL-ISSUED: 424/255.1; 424/192.1, 424/193.1, 424/195.11, 424/85.1, 424/85.4, 424/85.5, 435/69.5, 435/69.7, 530/350, 530/351

US-CL-CURRENT: 424/255.1; 424/192.1, 424/193.1, 424/195.11, 424/85.1, 424/85.4, 424/85.5, 435/69.5, 435/69.7, 530/350, 530/351INT-CL-ISSUED: [07] A61 K 39/102

---

L16: Entry 3 of 8

File: USPT

Nov 17, 1998

US-PAT-NO: 5837268

DOCUMENT-IDENTIFIER: US 5837268 A

TITLE: GnRH-leukotoxin chimeras

DATE-ISSUED: November 17, 1998

US-CL-ISSUED: 424/255.1; 424/184.1, 424/200.1, 424/198.1, 424/193.1, 424/192.1, 530/300, 530/350, 514/2, 514/7, 514/12, 514/15, 935/11, 935/12, 935/13

US-CL-CURRENT: 424/255.1; 424/184.1, 424/192.1, 424/193.1, 424/198.1, 424/200.1, 514/12, 514/15, 514/2, 514/7, 530/300, 530/350INT-CL-ISSUED: [06] A61 K 38/00, A61 K 39/02, C12 N 15/00, C07 K 2/00

---

L16: Entry 4 of 8

File: USPT

Jan 14, 1997

US-PAT-NO: 5594107

DOCUMENT-IDENTIFIER: US 5594107 A

**\*\* See image for Certificate of Correction \*\***

TITLE: Chimeric protein comprising an RTX-family cytotoxin and interferon-2 or interferon

DATE-ISSUED: January 14, 1997

US-CL-ISSUED: 530/350; 435/69.5, 435/69.7, 530/351, 530/825, 424/192.1, 424/195.11, 424/197.11, 424/85.1

US-CL-CURRENT: 530/350; 424/192.1, 424/195.11, 424/197.11, 424/85.1, 435/69.5, 435/69.7, 530/351, 530/825INT-CL-ISSUED: [06] C12 N 15/19, A61 K 39/102

---

L16: Entry 5 of 8

File: DWPI

Aug 1, 2000

DERWENT-ACC-NO: 2000-531543

ABSTRACTED-PUB-NO: US 6096320A

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TITLE: Vaccine for stimulating immunity against pneumonia comprises chimeric protein comprising gamma-interferon and leukotoxin derived from Pasteurella haemolytica

INT-CL (IPC): A61 K 39/102

Derwent-CL (DC): B04, C06, D16

CPI Codes: B04-H03F; B04-H05C; B04-N04; B14-S11; C04-H03F; C04-H05C; C04-N04; C14-S11; D05-H07; D05-H17C;

---

L16: Entry 6 of 8

File: DWPI

Mar 1, 2006

DERWENT-ACC-NO: 1998-159540

ABSTRACTED-PUB-NO: US 5837268A

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TITLE: Chimeric protein of leukotoxin and gonadotropin releasing hormone - useful for, e.g. preparation of vaccines for reduction of incidence of mammary tumours in mammals, US 6521746 B1

INT-CL (IPC): A61 K 38/00, A61 K 38/09, A61 K 39/00, A61 K 39/02, A61 K 39/385, A61 K 39/39, A61 P 15/18, A61 P 35/00, C07 H 2/02, C07 H 2/04, C07 H 21/02, C07 H 21/04, C07 K 2/00, C07 K 7/23, C07 K 14/285, C07 K 14/575, C07 K 19/00, C12 N 0/00, C12 N 1/21, C12 N 15/00, C12 N 15/09, C12 N 15/16, C12 N 15/31, C12 N 15/62, C12 P 21/02, C12 P 21/04, C12 P 21/06, C12 N 1/21, C12 P 21/02, C12 R 1:19, C12 R 1:19

Derwent-CL (DC): B04, D16

CPI Codes: B04-G01; B04-J07; B14-H01B; B14-S11C; D05-H07; D05-H12C; D05-H12E; D05-H17C;

L16: Entry 7 of 8

File: DWPI

Jan 14, 1997

DERWENT-ACC-NO: 1997-099529

ABSTRACTED-PUB-NO: US 5594107A

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TITLE: Immunogenic chimeric proteins comprising cytokine linked to RTX toxin -  
useful in vaccines, esp. against shipping fever in cattle

INT-CL (IPC): A61 K 39/102, C12 N 15/19

Derwent-CL (DC): B04, C06, D16

CPI Codes: B04-C01G; C04-C01G; B04-N02A; C04-N02A; B04-N03A; C04-N03A; B14-S11A;  
C14-S11A; D05-H07; D05-H17C; D05-H17C1;

L16: Entry 8 of 8

File: DWPI

Sep 28, 2004

DERWENT-ACC-NO: 1993-152482

ABSTRACTED-PUB-NO: US 5422110A

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TITLE: Immunological carrier system with enhanced immunogenicity - comprises  
chimeric protein comprising leuco:toxin peptide or homologous protein fused to  
antigen esp. somatostatin or gonadotropin releasing hormone

INT-CL (IPC): A61 K 39/00, A61 K 39/02, A61 K 39/102, A61 K 39/15, C07 H 2/02,  
C07 H 2/04, C07 K 13/00, C12 N 15/31, C12 N 15/62, C12 P 21/06

Derwent-CL (DC): B04, D16

CPI Codes: B02-V02; B04-B02B4; B04-B02D4; B04-B04A1; B04-B04A5; B04-C01; D05-C12;  
D05-H03B; D05-H07; D05-H10; D05-H12;

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# UniProtKB/Swiss-Prot entry Q44066



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[\[Keywords\]](#) [\[Features\]](#) [\[Sequence\]](#) [\[Tools\]](#)

*Note: most headings are clickable, even if they don't appear as links. They link to the user manual or other documents.*

## Entry information

Entry name	HLYA_AERHY
Primary accession number	Q44066
Secondary accession numbers	None
Integrated into Swiss-Prot on	June 1, 2001
Sequence was last modified on	November 1, 1996 (Sequence version 1)
Annotations were last modified on	February 7, 2006 (Entry version 30)

## Name and origin of the protein

Protein name	Putative alpha-hemolysin
Synonyms	None
Gene name	<b>Name: hlyA</b>
From	Aeromonas hydrophila [TaxID: 644]
Taxonomy	Bacteria; Proteobacteria; Gammaproteobacteria; Aeromonadales; Aeromonadaceae; Aeromonas.

## References

[1] NUCLEOTIDE SEQUENCE [GENOMIC DNA].

**STRAIN=Ah20;**

Chen J.D., Lai S.Y., Chen C.H.;

"Cloning, expression and sequencing of Aeromonas hydrophila alpha-hemolysin gene determinant.";

Submitted (OCT-1995) to the EMBL/GenBank/DDBJ databases.

## Comments

- **FUNCTION:** Lyses fish blood cells (*Potential*).
- **SIMILARITY:** Belongs to the UPF0161 family [view classification].

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## Cross-references



**Sequence databases**EMBL L36462; AAB81225.1; -;  
Genomic\_DNA.[EMBL / GenBank / DDBJ]  
[CoDingSequence]**3D structure databases**

ModBase Q44066.

**Protein-protein interaction databases**

DIP Q44066.

**2D gel databases**

SWISS-2DPAGE Get region on 2D PAGE.

**Organism-specific gene databases**

HOGENOM [Family / Alignment / Tree]

**Family and domain databases**HAMAP MF\_00386; -, 1.  
PBIL [Family / Alignment / Tree]InterPro IPR002696; DUF37.  
Graphical view of domain structure.Pfam PF01809; DUF37; 1.  
Pfam graphical view of domain structure.ProDom PD004225; DUF37; 1.  
[Domain structure / List of seq. sharing at least 1 domain]

TIGRFAMs TIGR00278; DUF37; 1.

BLOCKS Q44066.

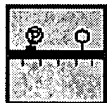
**Other**

ProtoNet Q44066.

UniRef View cluster of proteins with at least 50% / 90% / 100% identity.

**Keywords**

Cytolysis; Hemolysis; Toxin.

**Features**

Feature table viewer

Key	From	To	Length	Description	FTid
CHAIN	1	85	85	Putative alpha-hemolysin.	PRO_0000171785

**Sequence information**Length: **85 AA** [This is the length of the unprocessed precursor]Molecular weight: **9345 Da** [This is the MW of the unprocessed precursor]CRC64: **1FCEDA95833350C5**  
is a checksum on the sequence

	<u>10</u>	<u>20</u>	<u>30</u>	<u>40</u>	<u>50</u>	<u>60</u>
MASALSPGSR	VLIALIRVYQ	RLISPLLGP	CRFTPTCSSY	GIEALRRFGV	IKGSWLTVKR	
	<u>70</u>	<u>80</u>				
VLKCHPLHPG	GDDPVPPGPF	DTREH				

Q  
in  
F/

foi

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*View entry in raw text format (no links)*

*Report form for errors/updates in this UniProtKB/Swiss-Prot entry*

**BLAST**

BLAST submission on  
ExPASy/SIB  
or at NCBI (USA)



Sequence analysis tools: ProtParam,  
ProtScale, Compute pI/Mw, PeptideMass,  
PeptideCutter, Dotlet (Java)



ScanProsite, MotifScan



Submit a homology modeling request to  
SWISS-MODEL

**NPS@**

NPSA Sequence  
analysis tools



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# Blast 2 Sequences results

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Entrez

BLAST

OMIM

Taxonomy

Structure

## BLAST 2 SEQUENCES RESULTS VERSION BLASTP 2.2.13 [Nov-27-2005]

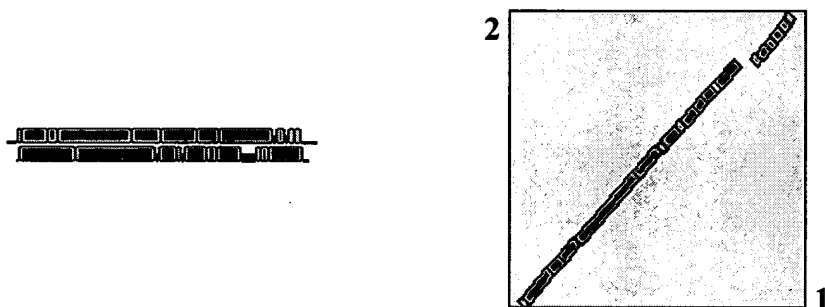
Matrix **BLOSUM62** gap open: **11** gap extension: **1**  
 x\_dropoff: **50** expect: **300.00** wordsize: **3** Filter ☐ View option **Standard**  
 Masking character option **X for protein, n for nucleotide** Masking color option **Black**  
☐ Show CDS translation **Align**

Sequence 1: gi|470685|gb|AAA21924.1|RTX toxin

Length = 1049 (1 .. 1049)

Sequence 2: gi|15146408|gb|AAK84651.1|AF205359\_1 RTX toxin [Moraxella bovis]

Length = 927 (1 .. 927)



NOTE: Bitscore and expect value are calculated based on the size of the nr database.



Score = 714 bits (1843), Expect = 0.0

Identities = 425/970 (43%), Positives = 571/970 (58%), Gaps = 97/970 (10%)

Query	45	LAAGKAVQKYGNK-LVLVIPKEYDGSVGN GFFDLVKAAEELGIQVKYVNRNELEVAHKSL	103
		+ AG K G K L L IPK+YD G D +KAA+ELGI N E A.KS+	
Sbjct	11	IQAGLNSTKSGLKNLYLAIPKDYDPQGGT LNDFIKADELGIARLAEEPNHTETAKKSV	70
Query	104	GTADQFLGLTERGLTLFAPQLDQFLQKHSKISNVVGSSTGDAVS-KLAKSQTIIISGIQSV	162
		T +QFL LT+ G+ + A +L++FLQKHS G + + + KL K+ ++S + S	
Sbjct	71	DTVNQFLSLTQTGIAISATKLEKFLQKHSTNKLAKGLDSVENIDRKLKASNVLSTLSSF	130
Query	163	LGTVLAGINLNEAIISGGSELE-LAEAGVSLASELVSNIAGTTTIDAFTTQIQNFGKLA	221
		LGT LAGI L+ I G + + LA+A + L +E++ N+++ T TI+AF++Q+ G	
Sbjct	131	LGTALAGIELDSLIIKKGDAAPDALAKASIDLINEIIGNLSQSTQTIEAFSSQLAKLGSTI	190
Query	222	ENAKGLGGVGRQLQNISGSALSKTGLGLDISSLLSGVTRSFALRNKNASTSTKVAAGFE	281
		AKG +G +LQN++ SKT LGL+II+ LLSG++ FAL +KNAST KVAAGFE	
Sbjct	191	SQAKGFSNIGNKLQNLN---FSKTNLGLEIITGLLSGISAGFALADKNASTGKKVAAGFE	247

Query	282	LSNQVIGGITKAVSSYILAQRRLAGLSTTGPAALIASSISLAISPLAFLRVADNFNRSK	341
		LSNQVIG +TKA+SSY+LAQR+ AGLSTTG AALI SSI LAISPLAF+ AD FN +	
Sbjct	248	LSNQVIGNVTKAISSYVLAQRVAAGLSTTGAVAALITSSIMLAISPLAFMNAADKFNHAN	307
Query	342	EIGEFAERFKKLGYDGDKLLSEFYHEAGTIDASITTISTALSAIAAGTAAASAGALVGAP	401
		+ EFA++F+K GYDGD LL+E+ GTI+AS+TTISTAL A++AG +AA+ G+ VGAP	
Sbjct	308	ALDEFAKQFRKFGYDGDHLLAEYQRGVGTIEASLTITISTALGAVSAGVSAAAVGSAGVAP	367
Query	402	ITLLVTGITGLISGILEFSKQPMLDHVASKIGNKIDEWEEKY-GKNYFENGYDARHKAFL	460
		I LLV G+TGLISGILE SKQ M + VA+++ KI EWEEK+ G+NYF+ GYD+R+ A+L	
Sbjct	368	IALLVAGVTGLISGILEASKQAMFESVANRLQGKILEWEKQNGGQNYFDKGYDSRYAAYL	427
Query	461	EDSFSLLSSFNKQYETERAVLITQQRWDEYIGELAGITGKGDKLSSGKAYVDYFQEGKLL	520
		++ LS NK+ E ER + ITQQRWD IGELAGIT G+++ SGKAY D F++GK +	
Sbjct	428	ANNLKFSELNKELEAERVIAITQQRWDNNIGELAGITKLGERIKSGKAYADAFEDGKKV	487
Query	521	EKKPDDFSKVVFDPTKGEIDISNS--QTSTLLKFVTPLLTPGTESRERTQTGKYEYITKL	578
		E S + D G IDISNS + + L F +PLLT GTESRER GKY YI KL	
Sbjct	488	EAG----SNITLDAKTGIIDISNSNGKKTQALHFTSPLLTAGTESRERLTNGKYSYINKL	543
Query	579	VVKGKDKWVVNGVKDKGAVYDYTNLIQHAHISSSVARGEYREVRLVSHLGNNGNDKVFLA	638
		W V + + D++ +IQ VA E E+ L+ + GND +F+	
Sbjct	544	KFGRVKNWQVTD-GEASSKLDFSKVIQR-----VAETEGTDEIGLIVNAKAGNDDIFVG	596
Query	639	AGSAEIHAGEGHDVYYDKT-DTGLLVIDGTKATEQGRYSVTRELSGATKILREVIKNQK	697
		G I G+GHD V+Y K G + +DGT ATE G Y+V R+++ I EV+K Q+	
Sbjct	597	QGKMNIIDGGDGHDRVFYSKDGFGNITVDGTSATEAGSYTVNRKVARG-DIYHEVVKRQE	655
Query	698	YAVGKREETLEYRDYELTQSGNSNLKAHDELHSVEE-IGSNQRDEFKGSKFRDIFHGADG	756
		VGKR ET++YRDYEL + G ++ D L SVEE IGS D FKGSKF DIFH +G	
Sbjct	656	TKVGKRTETIQYRDYELRKVG-YGYQSTDNLKSVEEVIGSQFNDVFKGSKFNDIFHSSEG	714
Query	757	DDLLNGNDGDDILYGDKGNDLGRDNGNDQLYGGEGBDDKLLGGNGNNYLSGGDGNDELQV	816
		DDLL+G GDD L+G KGND L GD G+D L GG GDD L GG GN	
Sbjct	715	DDLLDGGAGDDRLFGGKGNDRLSGDEGDDLLDGGSGDDVLNGGAGN-----	760
Query	817	LGNGFNVLRGGKGDDKLYGSSGSDLLDGGEGNDYLEGGDGSDFYVYRSTSGNHTIYDQGK	876
		D Y++R GN T+YD	
Sbjct	761	-----DVYIFRKGDGNDTLYD---	776
Query	877	ASDSKLYLSDLSDNVLKRVNDNLEFRSNNNNSNSGVLTIKDWFKGGNSYN-----H	929
		+ +DKL +D + +I+++R + + + N +SG + I W+ N N H	
Sbjct	777	GTGNDKLAFAFADANISDIMIERTKEGIIVK--RNDHSGSINIPRWYITSNLQNYQSNKTDH	834
Query	930	KIEQIVDKNGRKLTAGNLGNNFHD----TQQASSLLKNVTQEQNESNLSS--LKTELGKI	983
		KIEQ++ K+G +T+ + D T S LK + E LS+ + + L K+	
Sbjct	835	KIEQLIGKDGSIYITSDQIDKILQDKKGTVITSQELKKLADENKSQKLSASDIASSLNKL	894
Query	984	ITNAGNFGVA 993	
		+ + FG A	
Sbjct	895	VGSMALFGTA 904	

CPU time: 0.07 user secs. 0.01 sys. secs 0.08 total secs.

Lambda K H  
0.311 0.131 0.361

## Gapped

Lambda	K	H
0.267	0.0410	0.140

Matrix: BLOSUM62

Gap Penalties: Existence: 11, Extension: 1

Number of Sequences: 1

Number of Hits to DB: 9204

Number of extensions: 5598

Number of successful extensions: 52

Number of sequences better than 300.0: 1

Number of HSP's gapped: 1

Number of HSP's successfully gapped: 1

Length of query: 1049

Length of database: 1,215,510,009

Length adjustment: 144

Effective length of query: 905

Effective length of database: 1,215,509,865

Effective search space: 1100036427825

Effective search space used: 1100036427825

Neighboring words threshold: 9



X1: 16 ( 7.2 bits)

X2: 129 (49.7 bits)

X3: 129 (49.7 bits)

S1: 42 (21.8 bits)

S2: 71 (32.0 bits)



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Range: from  to  Features: ☐ SNP ☒ CDD ☒ MGC ☒ HPRD ☒ STS ☒ tRNA

☐ 1: [BAA04014](#). Reports RTX toxin I type ...[gi:497787]

[BLink](#), [Conserved Domains](#), [Links](#)

Comment Features Sequence

LOCUS BAA04014 1023 aa linear BCT 04-FEB-1999  
DEFINITION RTX toxin I type L [Actinobacillus pleuropneumoniae].  
ACCESSION BAA04014  
VERSION BAA04014.1 GI:497787  
DBSOURCE locus ACNAPXIA accession [D16582.1](#)  
KEYWORDS .  
SOURCE Actinobacillus pleuropneumoniae  
ORGANISM [Actinobacillus pleuropneumoniae](#)  
Bacteria; Proteobacteria; Gammaproteobacteria; Pasteurellales;  
Pasteurellaceae; Actinobacillus.  
REFERENCE 1 (sites)  
AUTHORS Frey,J., Meier,R., Gygi,D. and Nicolet,J.  
TITLE Nucleotide sequence of the hemolysin I gene from Actinobacillus  
pleuropneumoniae  
JOURNAL Infect. Immun. 59 (9), 3026-3032 (1991)  
PUBMED [1879928](#)  
REFERENCE 2 (residues 1 to 1023)  
AUTHORS Nagai,S., Yagihashi,T. and Ishihama,A.  
TITLE DNA sequence analysis of an allelic variant of the Actinobacillus  
pleuropneumoniae-RTX-toxin I (ApxIA) from serotype 10  
JOURNAL Microb. Pathog. 15 (6), 485-495 (1993)  
PUBMED [8007819](#)  
REFERENCE 3 (residues 1 to 1023)  
AUTHORS Nagai,S.  
TITLE Direct Submission  
JOURNAL Submitted (02-JUL-1993) Shinya Nagai, Nippon Institute of  
Biological Science; 2221-1, Shinmachi, Oume, Tokyo 198, Japan  
(E-mail:nfujita, Tel:0428-33-1037, Fax:0428-31-6166)  
COMMENT Submitted (02-Jul-1993) to DDBJ by:  
Shinya Nagai  
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2221-1 Shinmachi  
Oume, Tokyo 198  
Japan  
Phone: 0428-33-1037  
Fax: 0428-31-616.  
FEATURES Location/Qualifiers  
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/strain="13039"  
/db\_xref="taxon:715"

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 /function="hemolytic and cytotoxic activities"

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 /note="RTX"  
 /db\_xref="CDD:8277"

Region <729..850  
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 [Secondary metabolites biosynthesis, transport, and  
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 /note="COG2931"  
 /db\_xref="CDD:12280"

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## ORIGIN

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//

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Mar 14 2006 11:51:02

	BLAST	Protein	Structure	PubMed	Taxonomy
	Genome	Nucleotide	3D-Domains	Books	Help

Query: gi|470685 RTX toxin

Matching gi: 1710800

COG2931 assigned by Cognitor (2 best hits)





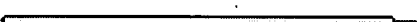








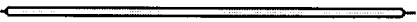








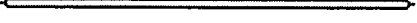
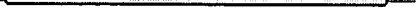


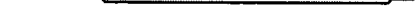









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Conserved Domain Database hits						
	5074	9		P55131	1710801	RTX-III toxin determinant A f
	5052	9		AAK50053	13937109	RTX-toxin IIIA [Actinobacillu
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	2638	5		NP_755445	26249405	Hemolysin A [Escherichia coli
	2625	5		CAD42039	23954242	HlyA protein [Escherichia col
	2624	5		1208296B	225074	hemolysin hlyA
	2624	5		AAA23975	146379	chromosomal hemolysin A (hlyA
	2611	5		AAA98233	150682	hemolysin A [Escherichia coli
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	2463	9		AAB17220	1477457	RTX-1 toxin determinant [Acti
	2462	9		ZP_001...	46143512	COG2931: RTX toxins and relat
	2442	9		P55128	1710793	RTX-I toxin determinant A fro
	2432	9		AAK50051	13937105	RTX toxin IA [Actinobacillus
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	2340	5		CAA63849	1524027	EHEC-hemolysin [Escherichia c
	2327	5		CAA60042	1805762	EHEC-hlyA [Escherichia coli]
	2322	5		CAA56234	4388764	hemolysin [Escherichia coli]
	2213	8		CAA34731	38645	leukotoxin [Actinobacillus ac
	2168	8		AAA21922	141834	leukotoxin (Lta)
	2127	8		AAM45569	21305108	AqxA [Actinobacillus equuli]
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	1981	5		AAA20544	525329	HlyA [Escherichia coli]
	1959	7		AAG40310	11762064	leukotoxin [Pasteurella treha
	1956	7		P55117	73620926	Leukotoxin (Lkt)
	1947	7		Q9ETX2	73621170	Leukotoxin (Lkt)
	1943	7		AAG40303	11762050	leukotoxin [Mannheimia glucos
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	1937	7		Q9EV34	73621169	Leukotoxin (Lkt)
	1937	7		AAG40300	11762044	leukotoxin [Mannheimia haemol
	1927	7		POC082	73621157	Leukotoxin (Lkt)



	1925	8	<a href="#">AAZ21415</a>	<a href="#">60476777</a>	ApxIIA [Actinobacillus porc
	1920	7	<a href="#">CAA81206</a>	<a href="#">400425</a>	leukotoxin A [Mannheimia haem
	1919	9	<a href="#">AAU84700</a>	<a href="#">52630374</a>	ApxIIA [Actinobacillus pleuro
	1916	7	<a href="#">AAA25543</a>	<a href="#">150513</a>	leukotoxin membrane protein (
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	1897	9	<a href="#">AAK50052</a>	<a href="#">13937107</a>	RTX toxin IIA [Actinobacillus
	1896	8	<a href="#">Q00951</a>	<a href="#">232261</a>	Hemolysin (Cytolysin II) (CLY
	1893	7	<a href="#">AAB36691</a>	<a href="#">397995</a>	Lkta
	1891	7	<a href="#">P55118</a>	<a href="#">1708215</a>	Leukotoxin (Lkt)
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	1134	5	<a href="#">ZP_007...</a>	<a href="#">75242313</a>	COG2931: RTX toxins and relat
	861	5	<a href="#">AAR87855</a>	<a href="#">40557139</a>	HlyA [Escherichia coli]
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	<u>351</u>	4	<u>NP_274427</u>	<u>15677274</u>	iron-regulated protein FrpC [
	<u>342</u>	3	<u>ZP_005...</u>	<u>67938048</u>	Hemolysin-type calcium-bindin
	<u>342</u>	4	<u>P55127</u>	<u>1706913</u>	Iron-regulated protein frpC
	<u>341</u>	5	<u>YP_245455</u>	<u>66968578</u>	HlyJ haemolysin-like protein
	<u>341</u>	4	<u>AAD02003</u>	<u>4104348</u>	S-layer-RTX protein [Campylob
	<u>340</u>	4	<u>P55126</u>	<u>1706912</u>	Iron-regulated protein frpA
	<u>324</u>	4	<u>NP_518370</u>	<u>17544968</u>	PUTATIVE CALCIUM BINDING HEMO